Adjustments and Calibrations 5

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Adjustments and Calibrations

The Printer requires certain adjustments and calibration procedures that must be performed under certain conditions.

REMEMBER THAT CERTAIN ADJUSTMENTS AND CALIBRATIONS ARE REQUIRED EVEN IF AN ASSEMBLY HAS BEEN DISASSEMBLED TO GAIN ACCESS TO ANOTHER ASSEMBLY OR COMPONENT.

Adjustments refer to procedures that require physical mechanical fine tuning of the different components in the Printer.

Calibrations refer to procedures that require entering values through the Front Panel in order to fine tune the components in the Printer.

All adjustment procedures that need to be done after replacing a Printhead are contained in Chapter 3.

Adjustments

1. Belt Tension Adjustment ⇒ Page *5-3*.
2. Carriage Height Adjustment ⇒ Page *5-5*.
3. Scan-Axis Belt Tension Adjustment ⇒ Page *5-9*.
4. Paper-Axis Belt Tension Adjustment ⇒ Page *5-11*.
5. Wiping Station Height Adjustment ⇒ Page *5-13*.
6. Wiper Belt Tension Adjustment ⇒ Page *5-16*.
7. Wiper Blade Height Adjustment ⇒ Page *5-17*.
8. Capping Station Height Adjustment ⇒ Page *5-20*.
9. Carriage Shield Height Adjustment ⇒ Page *5-22*.

Calibrations

1. Wiping Position Calibration ⇒ Page *5-23*.
2. Capping Position Calibration ⇒ Page *5-25*.
3. Side Margin Position Calibration ⇒ Page *5-27*.
4. Top Margin Position Calibration ⇒ Page *5-28*.

Belt Tension Adjustment

This adjustment must be performed whenever:

- Carriage Assembly is disassembled or replaced.
- Carriage Belt is disassembled or replaced.

Be very careful when handling the Carriage Belt because you could easily cut yourself.

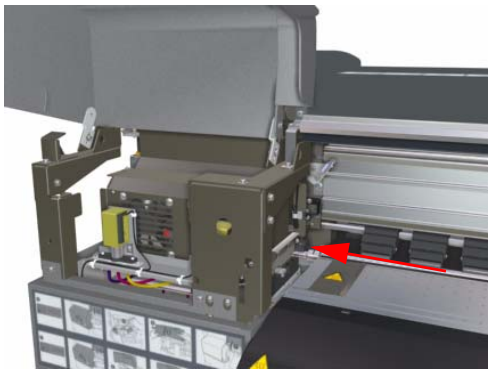
Perform the Belt Tension Adjustment as follows:

1 Make sure that the Carriage Belt is correctly installed.

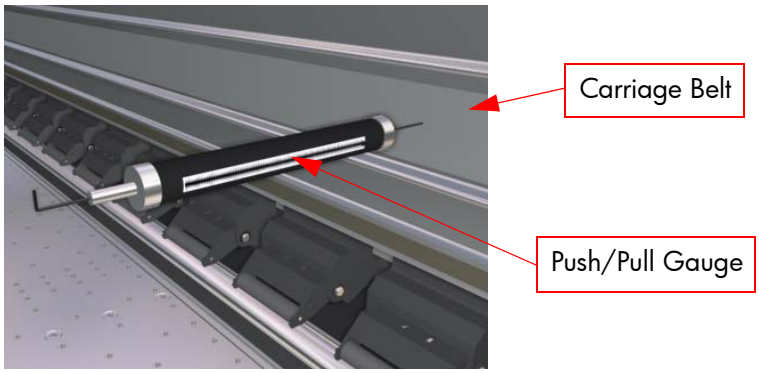
Make sure that the Carriage is Uncapped before performing the following steps. Trying to move the Carriage out of the Capping Station while it is still capped will cause damage to the Printheads.

2 Move the Carriage to the Wiping Station and Capping Station several times to make sure that the Carriage Belt does not move vertically on the Tension Pulley. If necessary, adjust the slant of the Tension Pulley by tightening or loosening the screws.

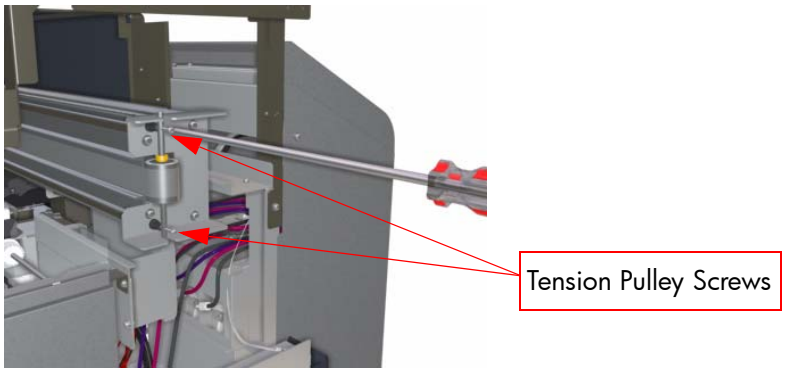
3 Move the Carriage to the Capping Station.



4 Using the Push/Pull Gauge, measure the tension in the middle of the Carriage Belt. The tension measured should be **150 g**.



5 If the tension is below 150 g, then you must tighten the Tension Pulley screws. If the tension is above 150 g, then you must loosen the Tension Pulley screws.



Carriage Height Adjustment

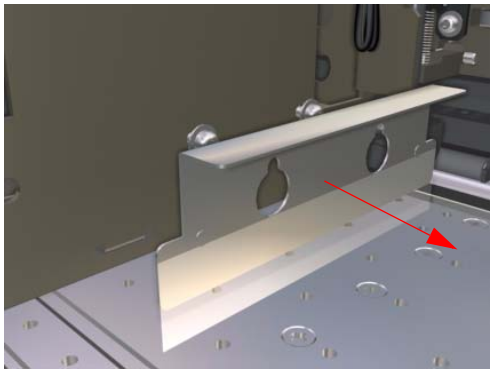
This adjustment must be performed whenever:

- Carriage Assembly is disassembled or replaced.

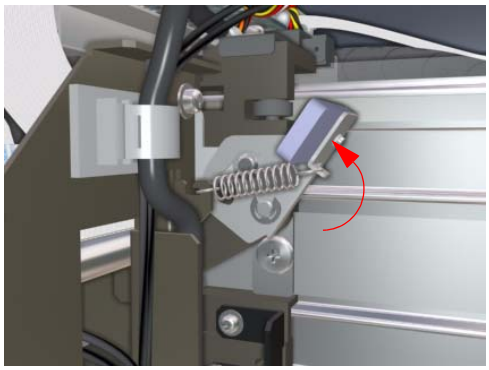
For this adjustment, you will need the Carriage Height Adjustment Tools.

Perform the Carriage Height Adjustment as follows:

1. Make sure that the following parts have been removed:
   - Upper Side Cover (Right).
   - Top Side Cover (Right).
   - Capping Door.
   - Cooling Fan Assembly.
2. Remove the Carriage Shields from both sides of the Carriage Assembly.

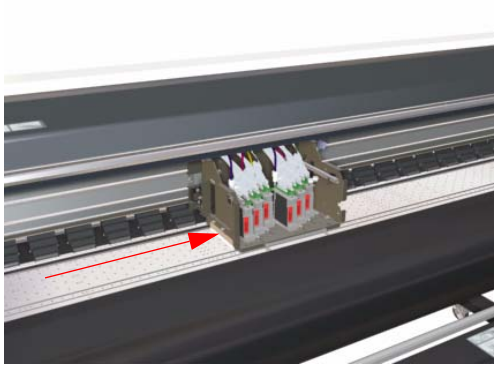


3. Make sure that the Printhead Height Lever is in the upper position (so that the Printhead height is actually in the lower position).

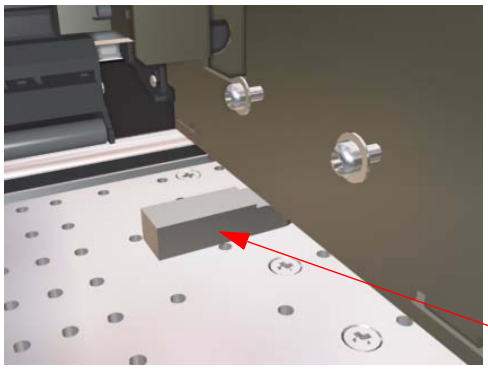


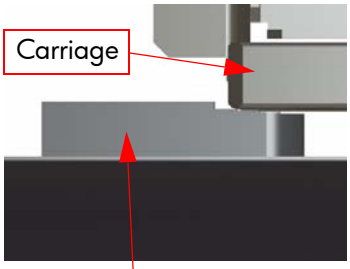
Make sure that the Carriage is Uncapped before performing the following steps. Trying to move the Carriage out of the Capping Station while it is still capped will cause damage to the Printheads.

4 Move the Carriage Assembly to the middle of the Center Platen.

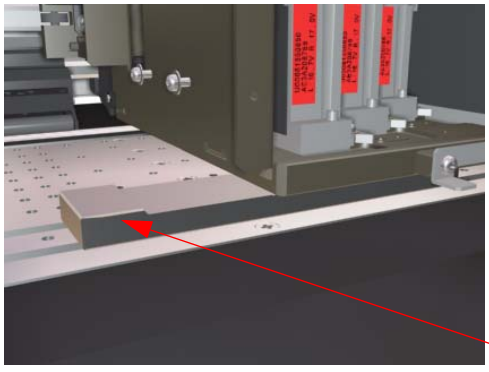


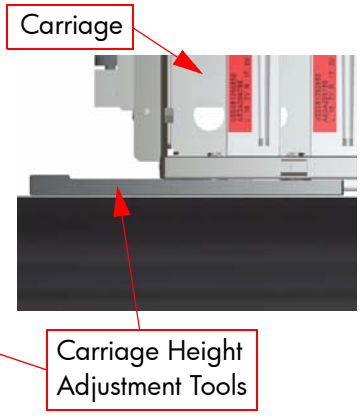
5 Insert the Carriage Height Adjustment Tools (round end) under the rear part of the Carriage (both sides) until the third step.



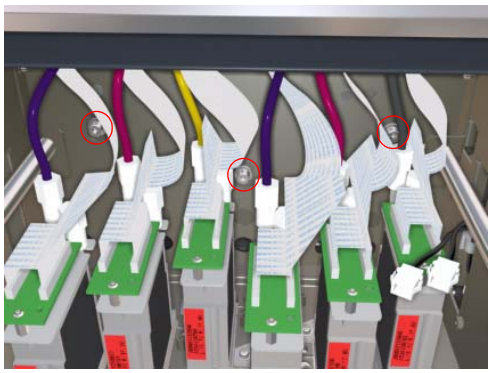


6 Insert the Carriage Height Adjustment Tools (square end) under the front part of the Carriage (both sides) until the second step.

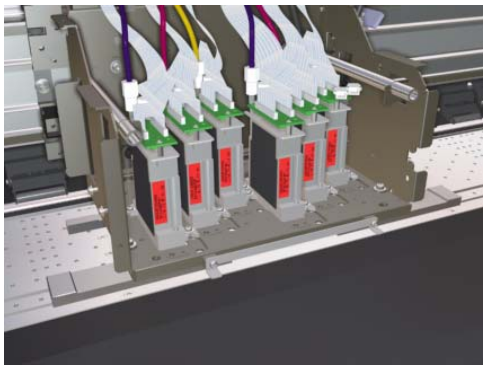




7 Loosen the three screws that secure the Carriage base to the main Carriage Assembly.

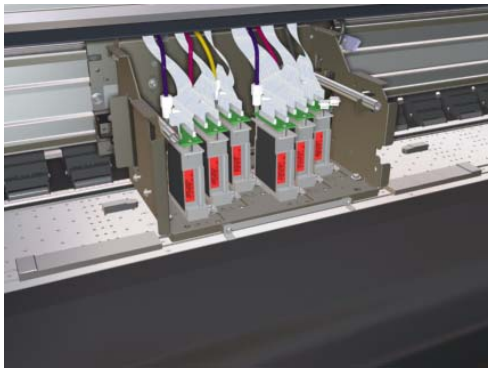


8 Lower the Carriage onto the Carriage Height Tools inserted in the previous steps.



9 With the Carriage Height Tools still in position, tighten the three screws that secure the Carriage base to the main Carriage Assembly. Tighten the left screw first, then the right screw and then the middle screw.

10 Remove the Carriage Height Tools from the Carriage base.



11 Insert the Carriage Height Tools again to check that the overall error is within ±0.2 mm. If the error exceeds this range, you will need to adjust the Carriage height again.

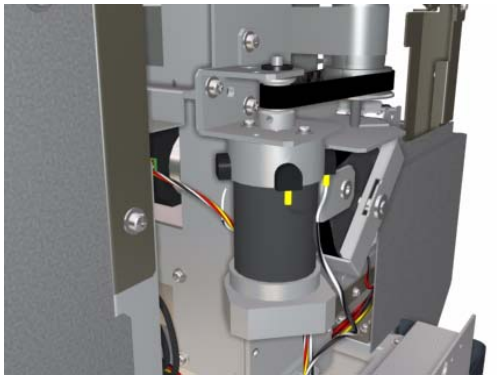
Scan-Axis Belt Tension Adjustment

This adjustment must be performed whenever:

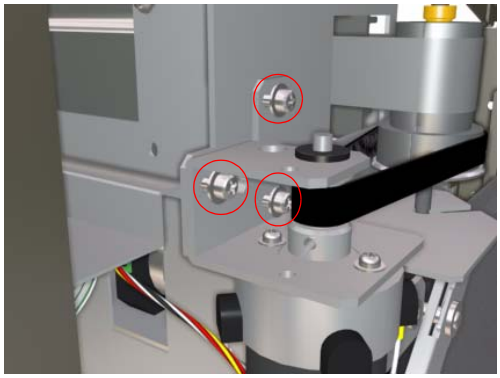
- Scan-Axis Motor is disassembled or replaced.
- Scan-Axis Belt is disassembled or replaced.

Perform the Scan-Axis Belt Tension Adjustment as follows:

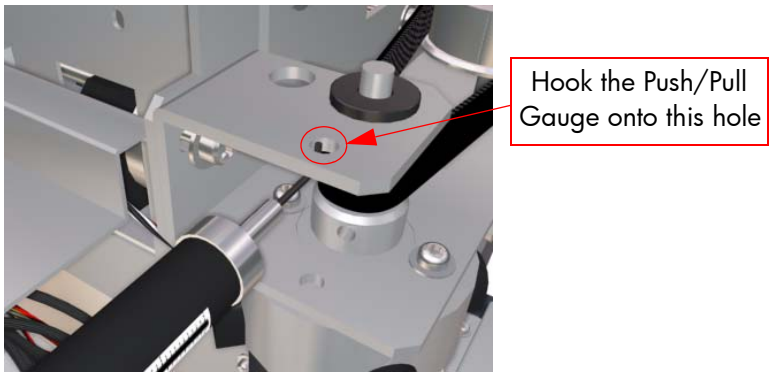
1. Make sure that the Scan-Axis Motor and Belt are correctly installed.



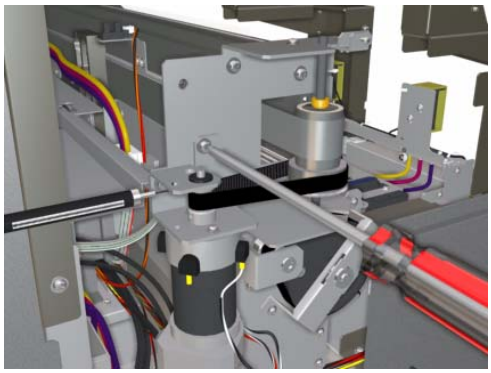
2. Loosen three screws that secure the Scan-Axis Motor Bracket to the Printer.



3. Hook the Push/Pull Gauge onto the Scan-Axis Motor Bracket and tension the Scan-Axis Belt to a force of 41.0 N ±2.0 N (4.18 kgf ±0.2 kgf).



4 While tensioning the Scan-Axis Belt, tighten the three screws that you loosened in step 2.



Paper-Axis Belt Tension Adjustment

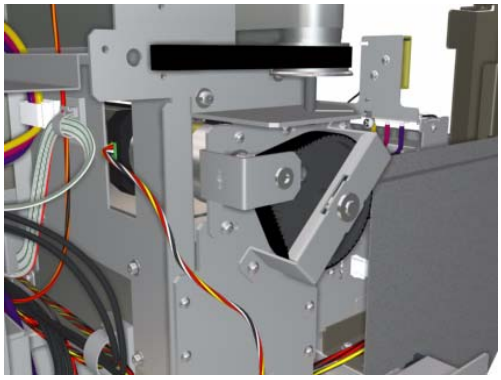
This adjustment must be performed whenever:

- Paper-Axis Motor is disassembled or replaced.
- Paper-Axis Belt is disassembled or replaced.

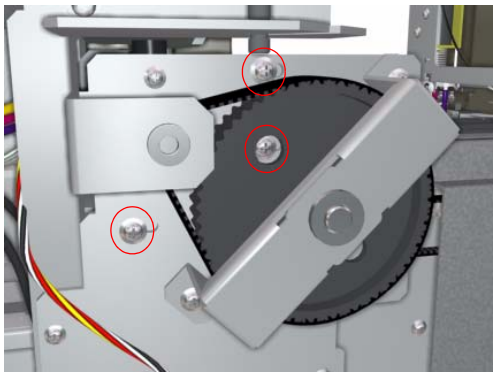
In order to adjust the Paper-Axis Belt, you will need to first remove the Scan-Axis Motor.

Perform the Paper-Axis Belt Tension Adjustment as follows:

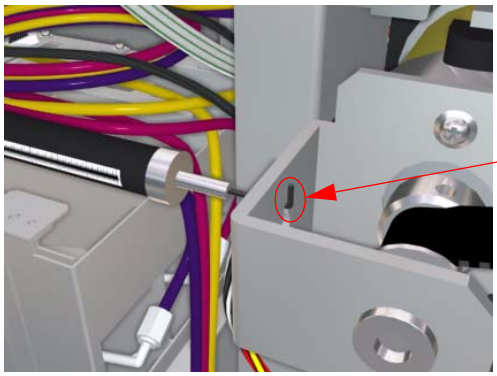
1 Make sure that the Paper-Axis Motor and Belt are correctly installed.



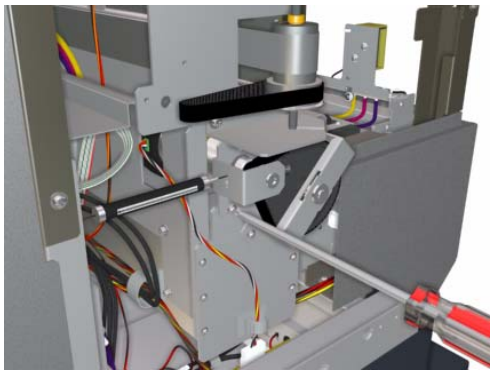
2 Loosen three screws that secure the Paper-Axis Motor Bracket to the Printer.



3 Hook the Push/Pull Gauge onto the Paper-Axis Motor Bracket and tension the Paper-Axis Belt to a force of 49.0 N ±2.0 N (5.0 kgf ±0.2 kgf).



4 While tensioning the Paper-Axis Belt, tighten the three screws that you loosened in step 2.



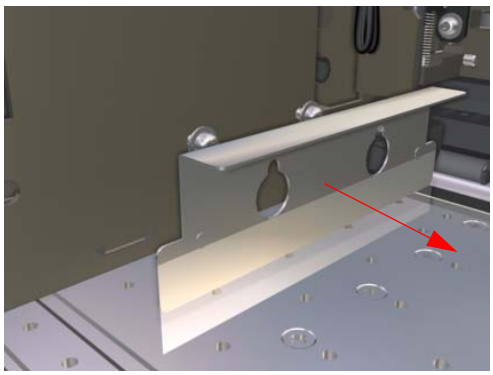
Wiping Station Height Adjustment

This adjustment must be performed whenever:

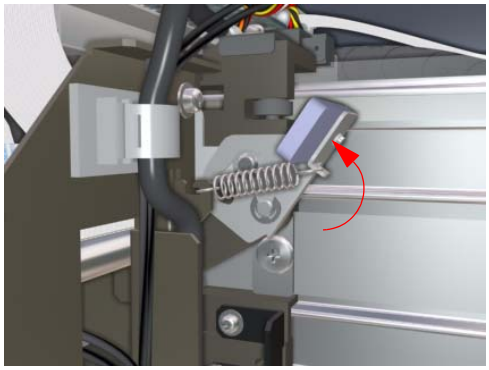
- Wiping Station is disassembled or replaced.

Perform the Wiping Station Height Adjustment as follows:

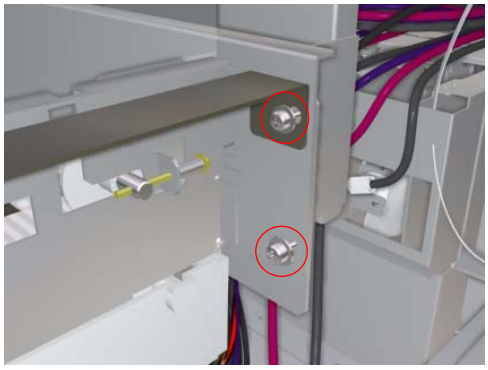
1. Make sure that the Wiping Station is correctly installed.
2. Remove the Carriage Shields from both sides of the Carriage Assembly.



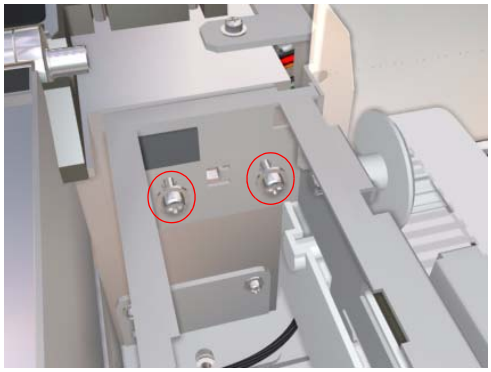
3. Make sure that the Printhead Height Lever is in the upper position (so that Printhead height is actually in the lower position).



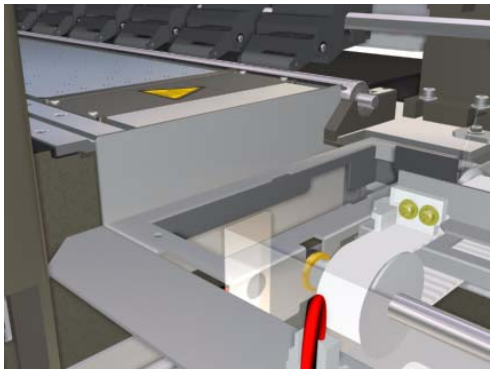
4. Loosen two screws that secure the Wiping Station on the right hand side.



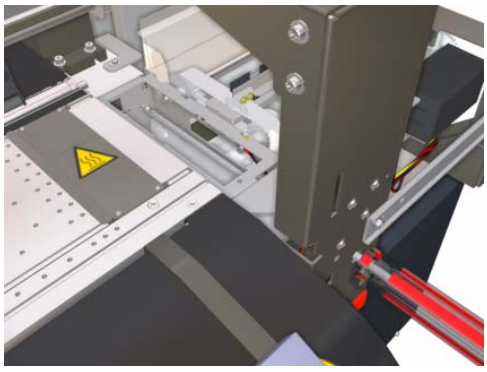
5 Loosen two screws that secure the Wiping Station on the left hand side.



6 Adjust the Wiping Station so that it is positioned just below the Center Platen.

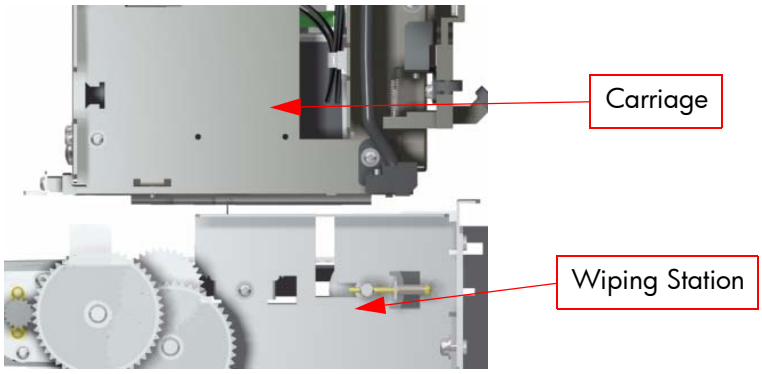


7 Tighten the four screws that you loosened in the previous steps.



Make sure that the Carriage is Uncapped before performing the following step. Trying to move the Carriage out of the Capping Station while it is still capped will cause damage to the Printheads.

8 Gently move the Carriage to the Wiping Station, making sure that the Carriage does not hit the Wiping Station. There should be a slight gap between the Carriage and the Wiping Station.



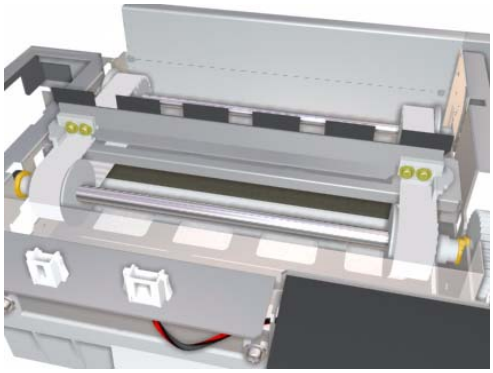
Wiper Belt Tension Adjustment

This adjustment must be performed whenever:

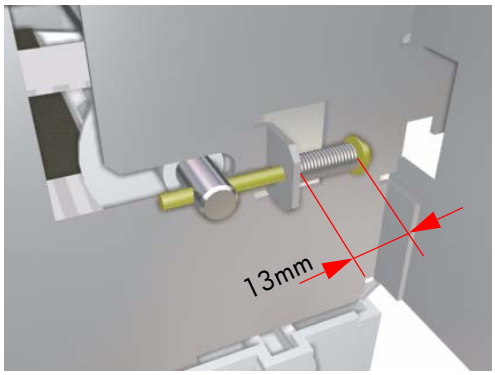
- Wiper Blade is disassembled or replaced.
- Wiper Belts are disassembled or replaced.

Perform the Wiper Belt Height Adjustment as follows:

1 Make sure that the Wiper Belts are correctly installed.



2 Tighten or loosen the Tension screw (for each Wiper Belt) until the remaining length of the screw is 13 mm.



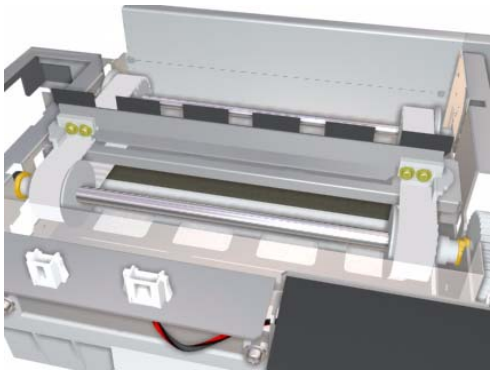
Wiper Blade Height Adjustment

This adjustment must be performed whenever:

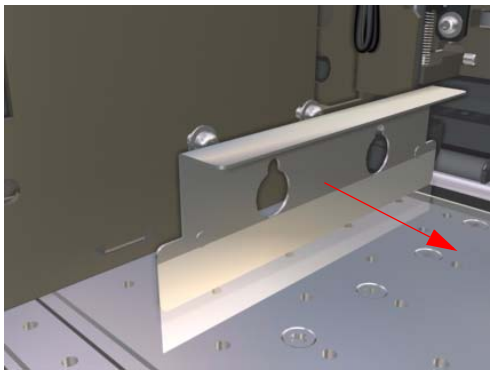
- Wiping Station is disassembled or replaced.
- Wiper Blade is disassembled or replaced.
- Wiper Belts are disassembled or replaced.

Perform the Wiper Blade Height Adjustment as follows:

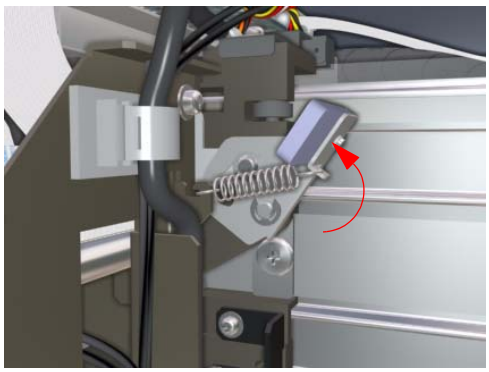
1. Make sure that the Wiping Station and the Wiper Belts are correctly installed and adjusted.
2. Make sure that the Wiper Blade is correctly installed.



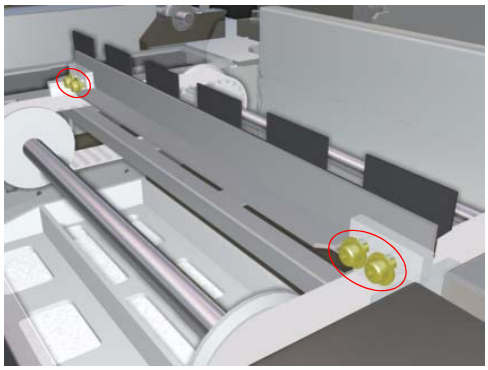
3. Remove the Carriage Shields from both sides of the Carriage Assembly.



4. Make sure that the Printhead Height Lever is in the upper position (so that Printhead height is actually in the lower position).

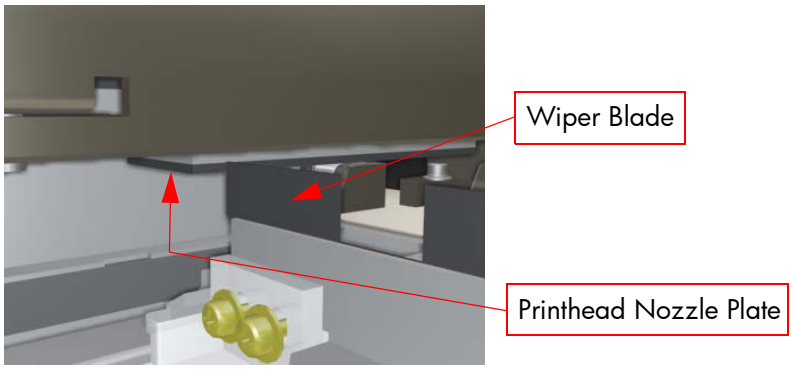


5 Loosen four screws that secure the Wiper Blade to the Wiper Blades.

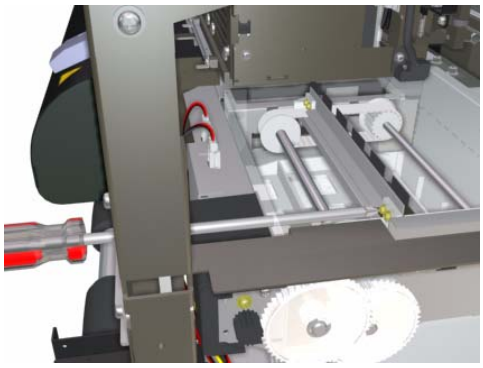


Make sure that the Carriage is Uncapped before performing the following step. Trying to move the Carriage out of the Capping Station while it is still capped will cause damage to the Printheads.

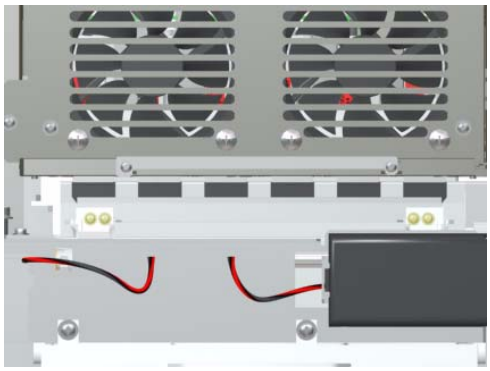
6 Move the Carriage to the Wiping Station and align the top edge of the Wiper Blade with the top edge of the Printhead Nozzle Plate (black part).



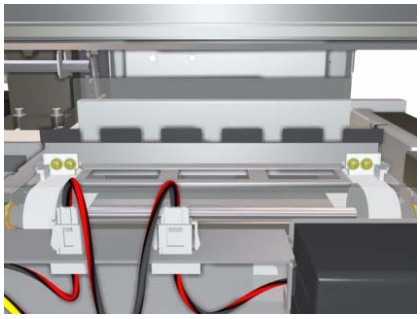
7 While holding the Wiper Blade in position, tighten the two screws that you loosened in a previous step.

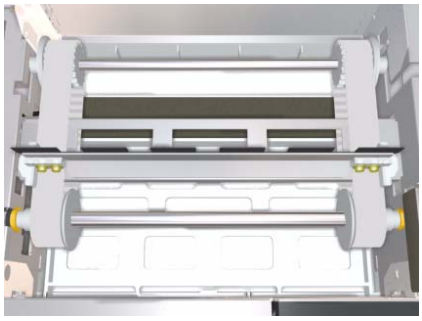


8 Manually rotate the Wiper Blade using the Wiping Station Gear and check that the Wiper Blade touches the Printheads evenly.



9 Also check that the Wiper Blade is level and not slanted.





Capping Station Height Adjustment

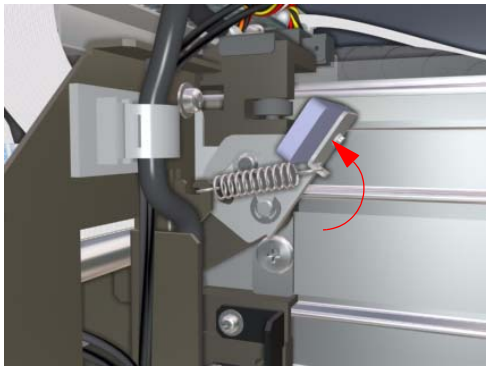
This adjustment must be performed whenever:

- Capping Station is disassembled or replaced.

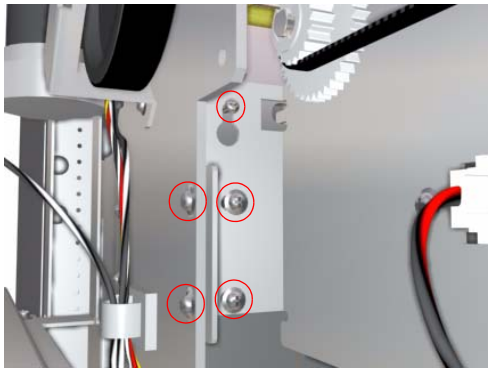
For this adjustment, you will need the Capping Height Tools.

Perform the Capping Station Height Adjustment as follows:

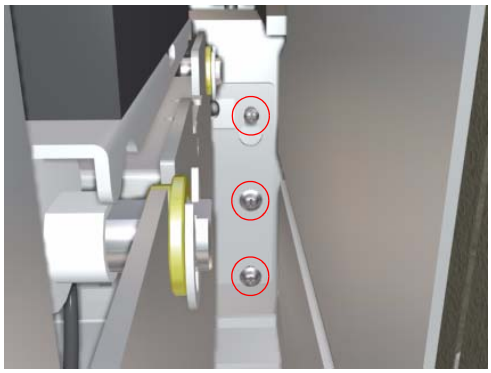
1. Make sure that the Capping Station is correctly installed and that the Carriage is moved to the Capping Station.
2. Make sure that the Printhead Height Lever is in the upper position (so that Printhead height is actually in the lower position).



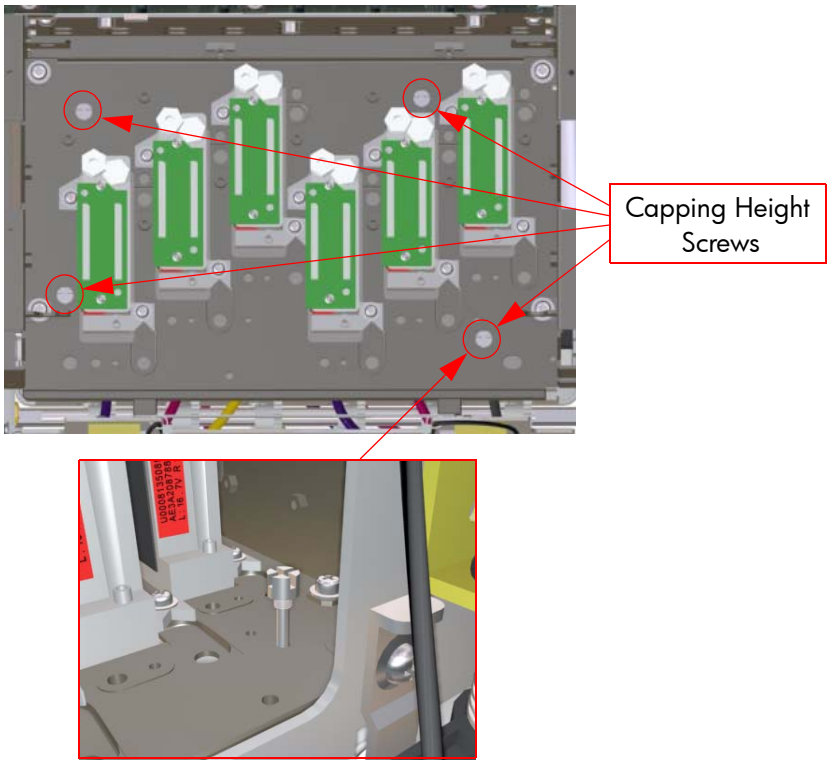
3. Loosen five screws from the left hand side of the Capping Station.



4. Loosen three screws from the right hand side of the Capping Station.



5 Install the four Capping Height screws into the Carriage in the positions shown below.



6 Adjust the height of the Capping Station so that at least three Capping Height screws are touching the top part of the capping Station.

7 While holding the Capping Station in position, tighten the screws that you loosened in the previous steps.

8 Remove the four Capping Height Screws from the Carriage.

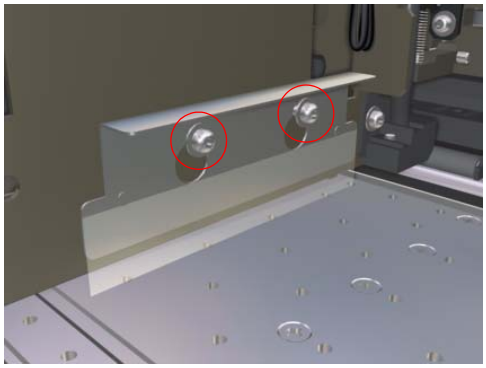
Carriage Shield Height Adjustment

This adjustment must be performed whenever:

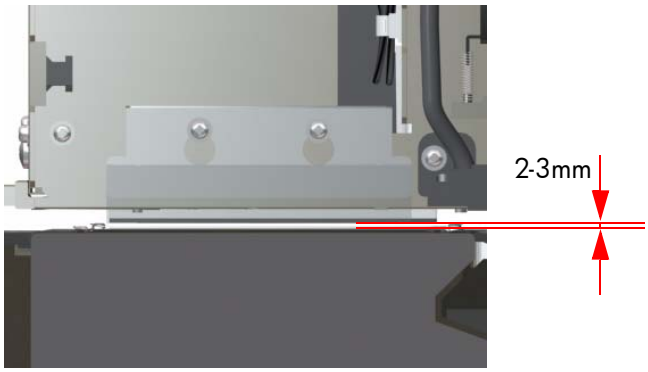
- Carriage Shields are disassembled or replaced.

Perform the Carriage Shield Height Adjustment as follows:

1. Make sure that the Carriage Shields are correctly installed.
2. Loosen 2 screws that secure the Carriage Shield to the Carriage.



3. Adjust the Carriage Shield so that there is a 2-3 mm clearance between the Carriage Shield and the Center Platen.



4. While holding the Carriage Shield in position, tighten the two screws that you loosened in a previous step.

Wiping Position Calibration

This calibration must be performed whenever:

- Wiping Station is disassembled or replaced.
- Wiper Blade is disassembled or replaced.
- Wiper Belts are disassembled or replaced.

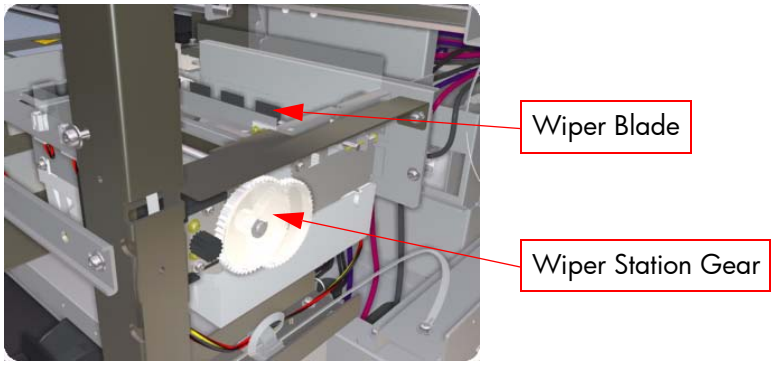
Perform the Wiping Position Calibration as follows:

1. Enter into the Maintenance Mode ⇒ Page *4-7*.
2. Move the Carriage Assembly to the Wiping Station ⇒ Page *4-18*.
3. Enter into the "Wipe Position" Menu ⇒ Page *4-13*.

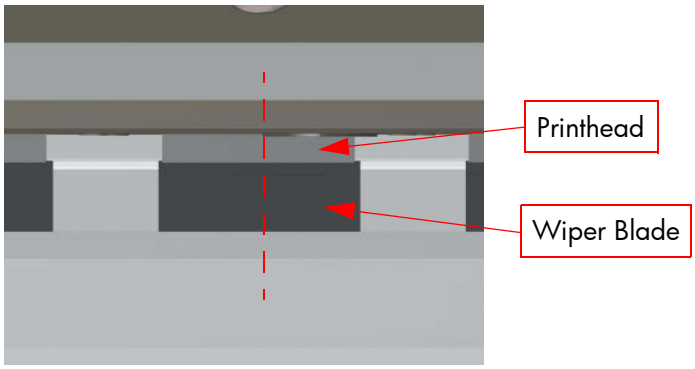
```
# WIPE POSITION
> +0.0 mm
```

This adjustment must be performed when the Carriage is at the Wiping Station. Do NOT move the Carriage when the Wiper Blade is raised as this could damage the Printheads.

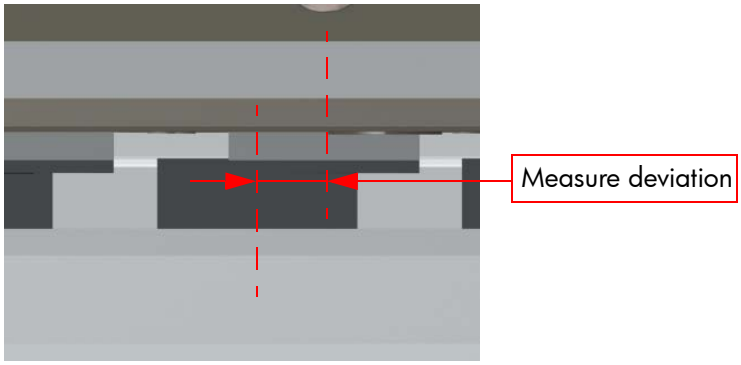
4. Manually rotate the Wiper Blade using the Wiping Station Gear until the Wiper Blade touches the Printheads (image is shown without the Carriage positioned in the Wiping Station). Remove the necessary covers in order to get access to the Wiping Station Gear.



5. Check that the center of the Wiper Blades are aligned with the center of the Printheads.

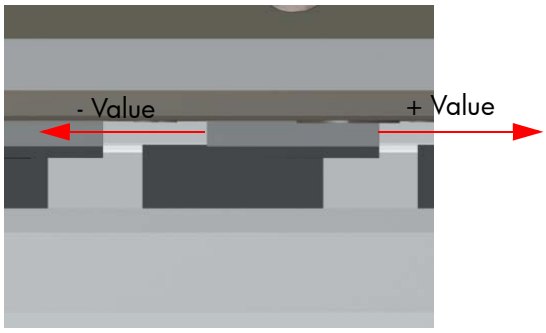


6 If the center of the Wiper Blades are **not** aligned with the center of the Printheads, you will need to visually estimate the deviation between the Wiper Blades and the Printheads.



7 Manually rotate the Wiper Blades using the Wiping Station Gear so that the Wiper Blades are lowered and **not** touching the Printheads.

8 Enter the deviation measured using the ▲ and ▼ keys to change the digits and the ◀ and ▶ keys to select the digits. If the Printheads are on the right side of the Wiper Blades, then enter a - value, and if the Printheads are on the left side of the Wiper Blades, then enter a + value.



9 Press the **OK** key once you have entered the deviation value.

10 Check again that the center of the Wiper Blades are aligned with the center of the Printheads. If they are still not aligned, then repeat the procedure from step 4.

11 Once the Wiping position is aligned, clean the edges of the Wiper Blades with a swab dipped in Wiping Liquid.

Capping Position Calibration

This calibration must be performed whenever:

- Capping Station is disassembled or replaced.
- Capping Unit is disassembled or replaced.

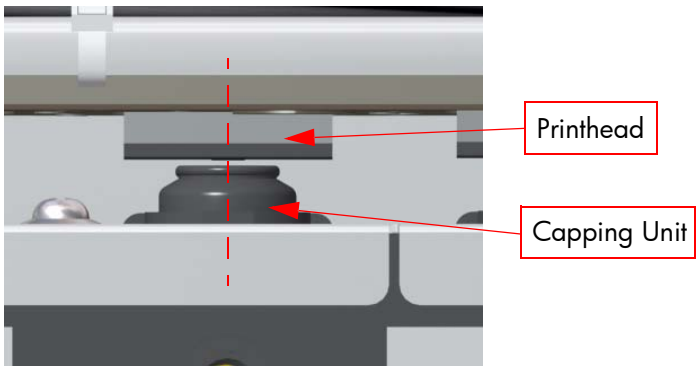
Perform the Capping Position Calibration as follows:

1. Enter into the Maintenance Mode ⇒ Page *4-7*.
2. Move the Carriage Assembly to the Capping Station (if not already at the Capping Station) ⇒ Page *4-18*.
3. If the Printheads are capped, uncap them ⇒ Page *4-43*.
4. Enter into the "Cap Position" Menu ⇒ Page *4-13*.

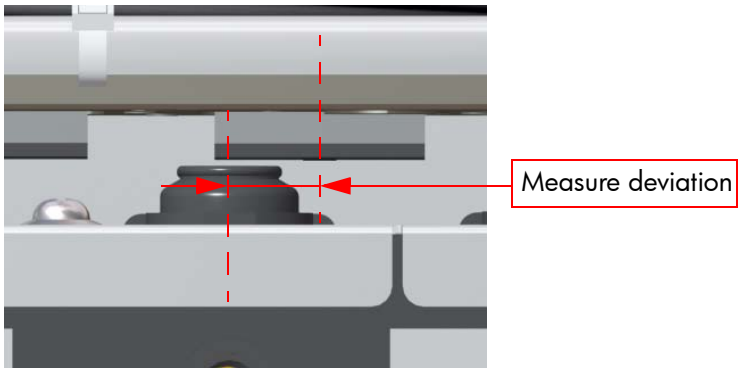
```
# CAP POSITION
> +0.0 mm
```

This adjustment must be performed when the Printheads have been uncapped. Do NOT move the Carriage when the Printheads are capped as this could damage the Printheads.

5. Visually check that the center of the Capping Units are aligned with the center of the Printheads.

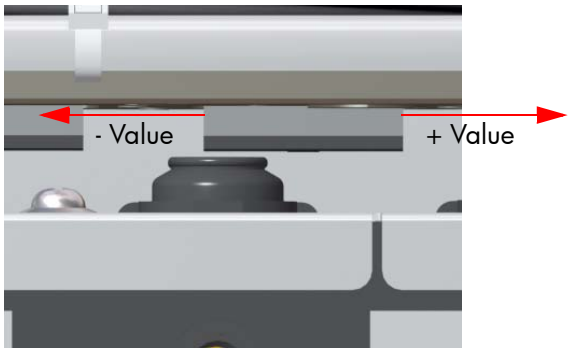


6. If the center of the Capping Units are **not** aligned with the center of the Printheads, you will need to visually estimate the deviation between the Capping Units and the Printheads.



7 Enter the deviation measured using the ▲ and ▼ keys to change the digits and the ◀ and ▶ keys to select the digits. If the Printheads are on the right side of the Capping Units, then enter a - value, and if the Printheads are on the left side of the Capping, then enter a + value.

```
# CAP POSITION
* +0.3 mm
```



8 Press the **OK** key once you have entered the deviation value.

9 Open the Rear Cover and close it again so that the Carriage adjusts itself in relation to the Capping Station.

10 Check again that the center of the Capping Units are aligned with the center of the Printheads. If they are still not aligned, then repeat the procedure from step 6.

11 Once the Capping position is aligned, move the Carriage Assembly to the Home Position ⇒ Page *4-18* or power Off and On the Printer.

Line Sensor Calibration (Side Margin)

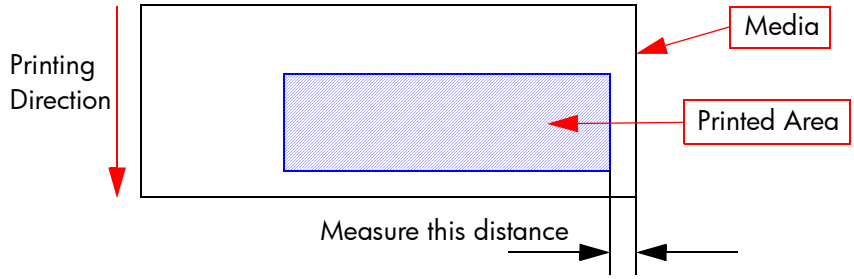
This calibration allows you to correct the value for the side margin position.

This calibration must be performed whenever:

- Line Sensor is disassembled or replaced.
- Black Printhead is disassembled or replaced.

Perform the Side Margin Position Calibration as follows:

1. Enter into the Maintenance Mode ⇒ Page *4-7*.
2. Print the Adjust Pattern ⇒ Page *4-10*.
3. Measure the side margin using a ruler. If the distance measured is more or less than 5 mm, then the side margin value will need to be changed.



4. Enter into the "LS Adj Side Val" Menu ⇒ Page *4-14*.

```
# LS ADJ SIDE VAL
> +0.0 mm
```

5. Determine the side margin value to be entered by subtracting the distance measured from the specified side margin value of 5 mm. For example, if the distance measured was 7 mm, then you subtract 7 mm from 5 mm and you get a result of +2 mm. If the distance measured was 2 mm, then you subtract 2 mm from 5 mm and you get a result of -3 mm.
6. Enter the side margin value using the ▲ and ▼ keys to change the digits and the ◀ and ▶ keys to select the digits.

```
# LS ADJ SIDE VAL
* +3.0 mm
```

7. Press the **OK** key once you have entered the side margin value.

Line Sensor Calibration (Top Margin)

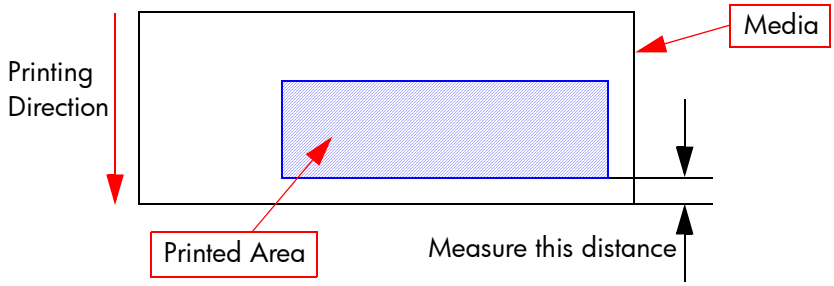
This calibration allows you to correct the value for the top margin position.

This calibration must be performed whenever:

- Line Sensor is disassembled or replaced.
- Black Printhead is disassembled or replaced.

Perform the Top Margin Position Calibration as follows:

1. Enter into the Maintenance Mode ⇒ Page *4-7*.
2. Print the Adjust Pattern ⇒ Page *4-10*.
3. Measure the top margin using a ruler. If the distance measured is more or less than 5 mm, then the top margin value will need to be changed.



4. Enter into the "LS Adj Top Val" Menu ⇒ Page *4-14*.

```
# LS ADJ TOP VAL
> +0.0 mm
```

5. Determine the top margin value to be entered by subtracting the distance measured from the specified side margin value of 5 mm. For example, if the distance measured was 8 mm, then you subtract 8 mm from 5 mm and you get a result of +3 mm. If the distance measured was 3 mm, then you subtract 3 mm from 5 mm and you get a result of -2 mm.
6. Enter the top margin value using the ▲ and ▼ keys to change the digits and the ◀ and ▶ keys to select the digits.

```
# LS ADJ TOP VAL
* +2.0 mm
```

7. Press the **OK** key once you have entered the top margin value.